

**REMARKS**

Claims 33-58 are pending. Claim 33 has been amended to expedite prosecution and for clarity. Applicants respectfully submit that the claims as amended are allowable.

**Rejection Under 35 U.S.C. § 103**

Claim 33 was rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Pandley *et al.* (U.S. 5,002,962) in view of Matthews *et al.* (U.S. 5,041,078). Applicants respectfully disagree.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation to modify the reference or to combine the references. Second, the prior art reference or references combined must teach or suggest all the claim limitations. Third, there must be a reasonable expectation of success. MPEP § 2142.

The invention as claimed is directed to methods for modulating the activity of a kinase involved in signal transduction using a compound that can be excited by light (*e.g.*, a photosensitizer). Pandley *et al.* teach photosensitizing agents but is silent regarding to the use of photosensitizers to modulate a kinase involved in signal transduction. This failure to teach the invention as claimed is not remedied by the combination of Pandley *et al.* with Matthews *et al.*, which teach a method of photodynamic inactivation of viruses using substituted sapphyrin compounds to effect viral deactivation during radiation with light.

While Pandley *et al.* and Matthews *et al.* both describe photosensitizing agents, neither of these references alone or combined, teaches methods for modulating the activity of a kinase involved in signal transduction. As the Office acknowledged, “the above cited references did not per se teach explicitly modulation of a kinase activity.” (Office Action, page 3). However, the Office indicates that “[o]ne of ordinary skill in the art would have been motivated to combine the teachings of the cited prior art, expose the said target (subject) to light, and expect successful result, as the compound is well known to the skilled artisan of its therapeutic use in photodynamic

therapy.” (Office Action, page 3). The Office also stated that “it is known that irradiation of the compound by light will transmit signals to the compound, activate it, which in turn acts on the said bound target.” *Id.*

The Office has incorrectly equated methods for modulating the activity of a kinase with methods for photodynamic therapy. Photodynamic therapy generally involves the administration of compounds that are capable of absorbing light (*e.g.*, a photosensitizer), followed by irradiation of locations in the subject for which a toxic or inhibitory effect is desired. For example, tumors could be irradiated with light absorbed by a photosensitizer, resulting in the destruction of the surrounding tissue.

However, the use of a photosensitizer in photodynamic therapy is different from the use of a photosensitizer to modulate the activity of a kinase, particularly a kinase involved in signal transduction. While signal transduction is “any process by which a cell converts one kind of signal or stimulus into another” (Office Action, page 5), the methods as claimed involve modulating the activity of a kinase. Kinases are a type of enzyme which transfers phosphate groups from high-energy donor molecules to specific target molecules. In the methods of the invention as claimed, a kinase involved in signal transduction is modulated.

The Pandey *et al.* and Matthews *et al.* are silent regarding kinases, let alone methods for modulating the activity of a kinase that is involved in signal transduction. Thus, the references alone or in combination fail to teach the methods of the invention as claimed. Accordingly, claim 33 is nonobvious under Pandey *et al.*, alone or in combination with Matthews *et al.*, and Applicants respectfully request that this rejection be withdrawn.

#### Rejection Under 35 U.S.C. § 101, Double-Patenting

Claims 33-58 were rejected under 35 U.S.C. § 101 as allegedly claiming the same invention as that of claims 1-24 of prior U.S. Patent No. 6,153,639. Applicants respectfully disagree.

The Office incorrectly stated that “[t]he claims are word for word identical to that of the patent.” (Office Action, page 4). Claims 1-24 of U.S. patent 6,153,639 (“the ‘639 patent”) are directed to methods for the treatment of tumors in a subject. Unlike the claims in the ‘639 patent, claims 33-58 are directed to methods for modulating the activity of a kinase, particularly a kinase involved in signal transduction. Methods for treatment of tumors are not the same invention as methods for modulating the activity of a kinase involved in a signal transduction. Thus, Applicants respectfully request that this rejection be withdrawn.

Claims 33-58 were also rejected under the judicially created doctrine of double patenting over claims 1-32 of U.S. Patent No. 5,929,105 in view of Mathews. Applicants respectfully disagree.

Although the Office recognizes that the claims of the application involve the use of compounds for modulating kinase activity in signal transduction, the Office incorrectly equates methods for modulating the activity of a kinase with methods for photodynamic therapy. As previously indicated, a kinase is a type of enzyme which transfers phosphate groups from high-energy donor molecules to specific target molecules. In the absence of any teaching or suggestion of compounds for modulating kinase activity, any teaching of compounds for photodynamic therapy would not render obvious the use of such compounds for modulating kinase activity.

Claims 1-32 of U.S. patent no. 5,929,105 are directed to methods for conducting photodynamic therapy. None of the claims involve modulating the activity of a kinase, as required in claims 33-58 of the invention as claimed. Thus, claims 33-58 are not obvious under the doctrine of obviousness-type double patenting, and Applicants respectfully request that this rejection be withdrawn.

**CONCLUSION**

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to withdraw the outstanding rejection of the claims and to pass this application to issue. If it is determined that a telephone conference would expedite the prosecution of this application, the Examiner is invited to telephone the undersigned at the number given below.

In the event the U.S. Patent and Trademark office determines that an extension and/or other relief is required, applicants petition for any required relief including extensions of time and authorize the Commissioner to charge the cost of such petitions and/or other fees due in connection with the filing of this document to **Deposit Account No. 03-1952** referencing docket no. 273012010303. However, the Commissioner is not authorized to charge the cost of the issue fee to the Deposit Account.

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Respectfully submitted,

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